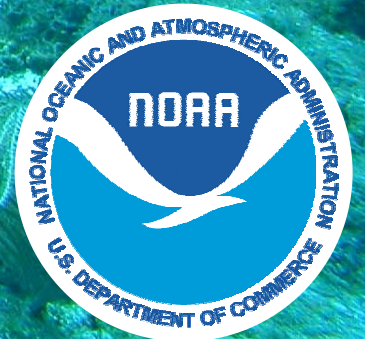


# EcoGIS: GIS Tools Supporting Ecosystem Approaches to Management

May 12, 2005



# Outline

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- Background on EcoGIS
- Goals
- EcoGIS team
- Scope
- Progress
- Related efforts
- Next steps

# EcoGIS Mission

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- To develop custom GIS tools that aid fisheries managers and scientists in moving towards a spatially and temporally explicit ecosystem approach to management of living resources.

# Background

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- EcoGIS is a component of the ecosystem pilot projects funded by Congress in FY04 and being developed by the four Fishery Management Councils in the Atlantic and Gulf
- Joint project between NMFS and NOS
- Sept. 2004: Workshop on GIS Tools Supporting Ecosystem Approaches to Management

# Ecosystem Approach to *Fisheries* Management (EAFM)

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- *Ecosystem approach to fisheries considers:*
  - *Indirect Effects of Harvesting*
  - *Interactions between Biological and Physical Components*
  - *Bycatch or Fishery Interactions*

# Goals

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- Help ecosystem pilot projects succeed
- Build a collaborative team from Councils, NMFS, and NOS
- Define the mapping needs of managers and scientists as they continue to move toward EAFM
- Develop and demonstrate GIS tools that meet priority management and science needs
- Create a vision for the future of EcoGIS

# Steps

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- Build a team
- Define functional and data needs
- Assess data quality and gaps
- Develop prototype tools
- Get feedback and refine (rinse, repeat)
- Results:
  - fully functional tools
  - blueprint for the future

# The EcoGIS team

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- End users
- IT managers
- Steering Committee
- Management team
- Technical team

# The EcoGIS team

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- End users

EcoGIS must be user defined and driven

- IT managers

EcoGIS tools must work within existing data and IT architectures and GIS development efforts

# The EcoGIS team

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## ■ Steering Committee

- Steve Murawski, NMFS/ST (co-chair)
- Mark Monaco, NOS/NCCOS (co-chair)
- Chad Demarest, NEFMC
- Tom Hoff, MAFMC
- Roger Pugliese, SAFMC
- Steve Atran, GOMFMC
- Tom Noji, NMFS/Howard Marine Lab
- Joe Powers, NMFS/SEFSC
- Steve Copps, NMFS/NWR
- Tony Lavoie, NOS/CSC

# The EcoGIS team

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- Management team
  - Tim Haverland, NMFS/ST
  - David Moe Nelson, NOS/NCCOS
- GIS technical team
  - Keith Bickers, NMFS/HC
  - Ken Buja, NOS/NCCOS
  - Kate Eschelbach NOS/NCCOS
  - Chris Harvey, NOS/NCCOS
  - Connie Moy, NOS/NCCOS
  - Simon Pittman, NOS/NCCOS

# Scope



- Time frame: pilot through FY06
- Audience – fisheries scientists and managers at NMFS and the Councils (Atlantic and Gulf)
- Functional scope ... tool approach
  - Area characterization
  - Commercial effort mapping and displacement analysis
  - Habitat interactions
  - Bycatch hotspot identification

# EcoGIS Area Characterization Report

Time Period: Jan 2002–Dec 2002

## General:

Total Selected Area: 45,713.5 sq. km

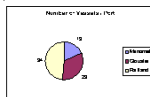
## Managed areas:

Area A – NMFS, Seasonal, April–June  
Area B – NMFS, Year-round, Jan. 1, 2000



## Commercial Fishing Catch and Effort (2002)

Species	Trips	Pounds
Albacore Tuna	200	65000
American Plaice	150	100000
Atlantic Cod	400	75000
Atlantic Halibut	200	25000
Atlantic Herring	69	125000
Black Sea Bass	19	10000

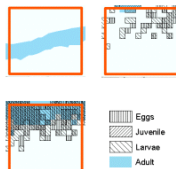


## Critical Habitat

None found

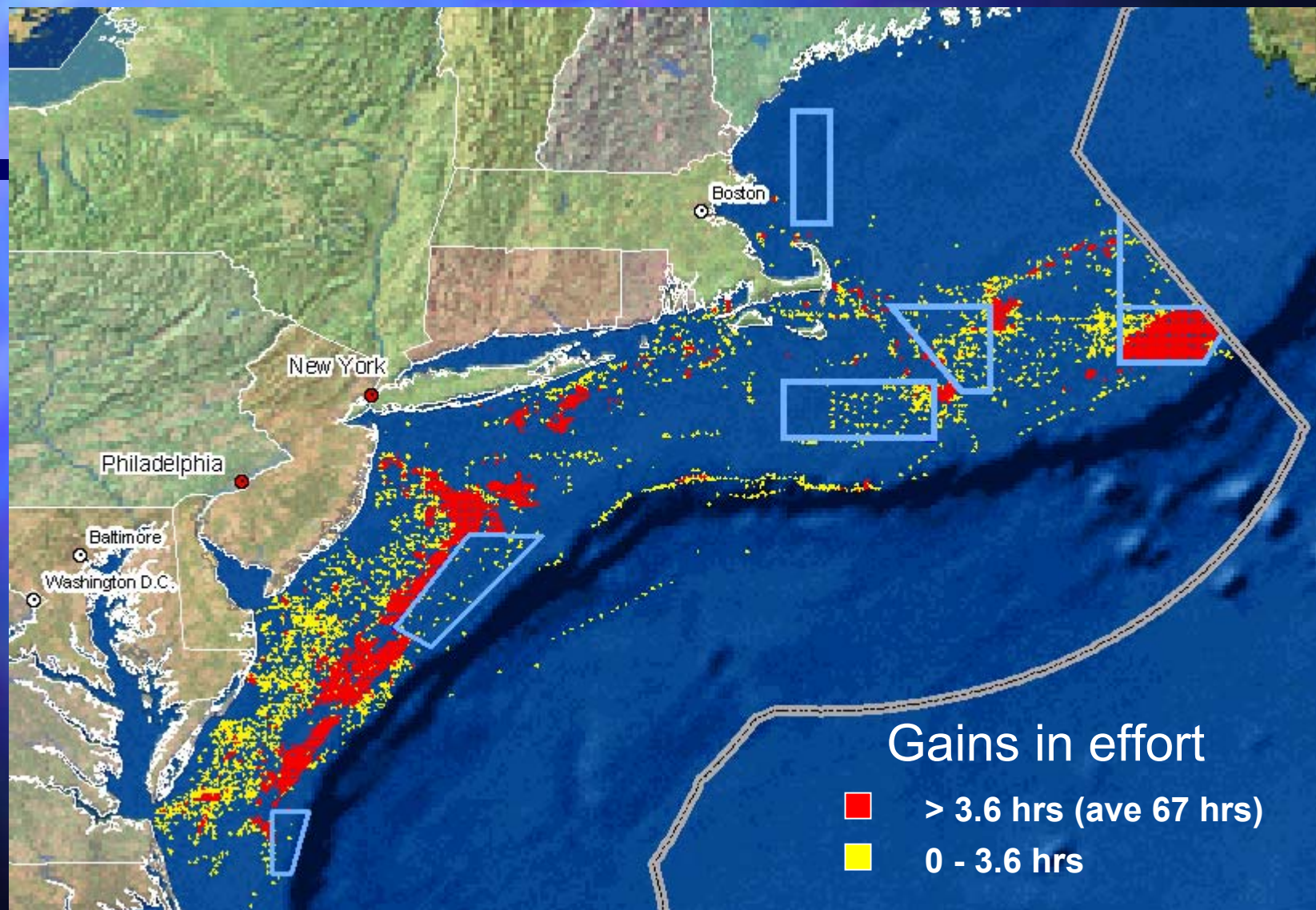
## Essential Fish Habitat

Species	Life Stage	Area
Albacore Tuna	Adult	2
American Plaice	Adult	305
American Plaice	Eggs	128
American Plaice	Juvenile	266
American Plaice	Larvae	120
Atlantic Cod	Adult	462
Atlantic Cod	Eggs	301
Atlantic Cod	Juvenile	231
Atlantic Cod	Larvae	334



Eggs  
Juvenile  
Larvae  
Adult

# Scallop effort difference plot JAN-NOV 1999 minus JAN-NOV 1998



# Scope

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- Geographic scope:
  - Best available data in New England and South Atlantic waters
- Tools should be expandable to other areas of the country

# EcoGIS Progress

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- Workshop summary and web page developed (Nov '04)
- Steering committee formed (Jan '05)
- Initial functional scope defined (Feb '05)
- Functional requirements strawman written and exploratory tool development (Mar '05)
- Project web page developed (Apr '05)
- Data collection for geographic focus areas (ongoing)

# Related efforts

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- NMFS regional GIS activities
- Gulf of Maine Ocean Data Partnership
- IOOS and Regional Associations
- Federal Geographic Data Committee
- GeoSpatial OneStop
- NOAA Enterprise GIS Architecture

# Summary

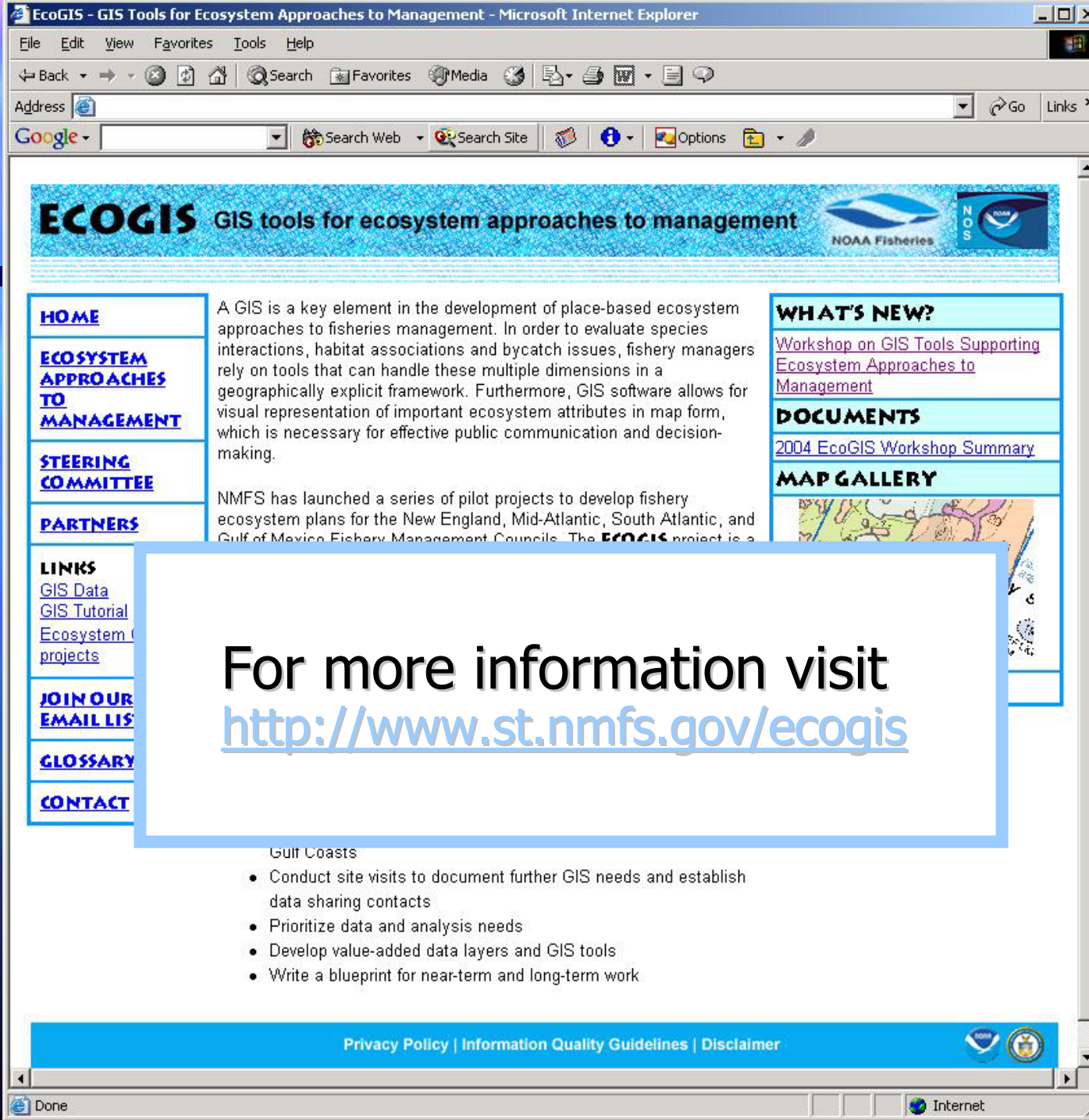
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- Ecosystem management is a 20-year effort
- Functional scope focused on the first incremental steps into EAFM
- Geographic focus on New England and South Atlantic waters
- EcoGIS is following existing data management and framework efforts
- Extensive communication and collaboration required

# Next steps

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- Continue to build relationships
- Get input from SEFSC, Mid-Atlantic, South Atlantic, and Gulf Councils (by Jul '05)
- Acquire representative data to support tool development (May-June '05)
- Develop prototype tools (by Oct '05)
- Demonstrate prototype tools, obtain feedback and refine requirements, and improve tools (through Sep. '06)
- Write annual report (by Oct. '05) and blueprint for the future (by Oct. '06)



For more information visit  
<http://www.st.nmfs.gov/ecogis>

- Gulf Coasts
- Conduct site visits to document further GIS needs and establish data sharing contacts
- Prioritize data and analysis needs
- Develop value-added data layers and GIS tools
- Write a blueprint for near-term and long-term work

# Discussion topics

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- High-level initiatives to support ecosystem management
- Existing internal and external GIS efforts
- Suitability of proposed tools
- Data gaps, irregularities ...
- Future data requirements and standards